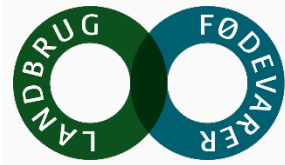




Dairy Safety Nudging Project  
New York Center for Agricultural  
Medicine and Health



SEGES



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

UCLouvain

Institut de recherche  
en sciences psychologiques  
**iPSY**  
Psychological Sciences  
Research Institute



*Applying What We Know  
About How People Think (or Don't Think)  
to Improve Farm Safety*



**Presenters:**

- David Meredith presenting for John McNamara
- Stephan Van den Broucke
- Julie Sorensen
- Helle Birk-Domino



## **Presentation Objectives:**

- Why Ag, Why Nudging?
- Behavioral Economics
- Developing Nudges
- Examples from “the Field”



# Farming...A Hazardous Sector

- Farms: death rate per 1000 is 5 times higher compared other sectors (Purschwitz & Field, 1990).
- Wide range of hazards e.g. Vehicles, machinery, livestock, heights, manure, pesticides.
- Farms are dispersed physically and socially, self-employed or are SME's (Field & Tormoehlen, 2006)
- Cochrane Review – 'no evidence that educational interventions are effective'. (Rautiainen et al, 2009. )



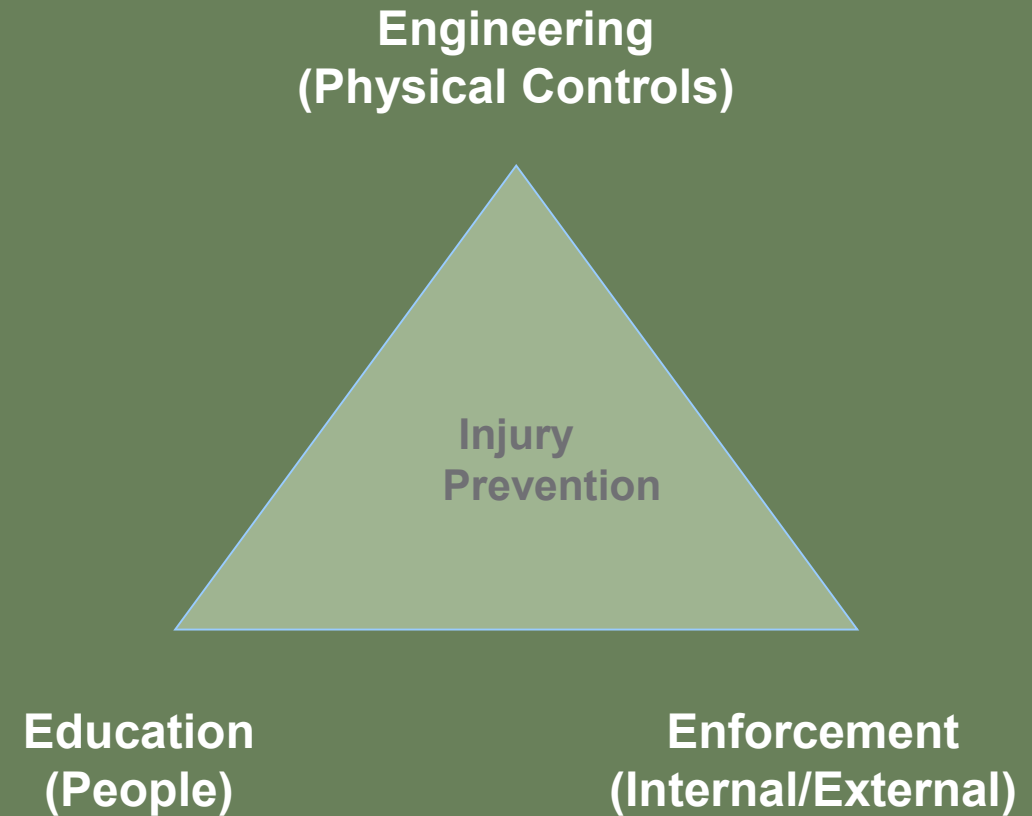
**Note:** Caption is prepared in 'negative' way as it is psychologically easier to communicate in this way.

# Psychological issues with OSH Adoption

- People have difficulty making judgements involving probabilities and use heuristics or 'rules of thumb' (Glendon, 1999; Nelson, 2004)
- Risk taking - a unique, individual experience (Glendon, 1999)
- People respond to 'outrage'. Voluntariness; control; familiarity and diffusion all increase risk taking (Sandman, 1987)
- Risk Homeostasis Theory: An individual's target risk level is determined by benefits/behaviours associated with the behaviour (Wilde, 1994)
- Risk Compensation Theory. People compensate for reduced risk level (Adams, 1995).

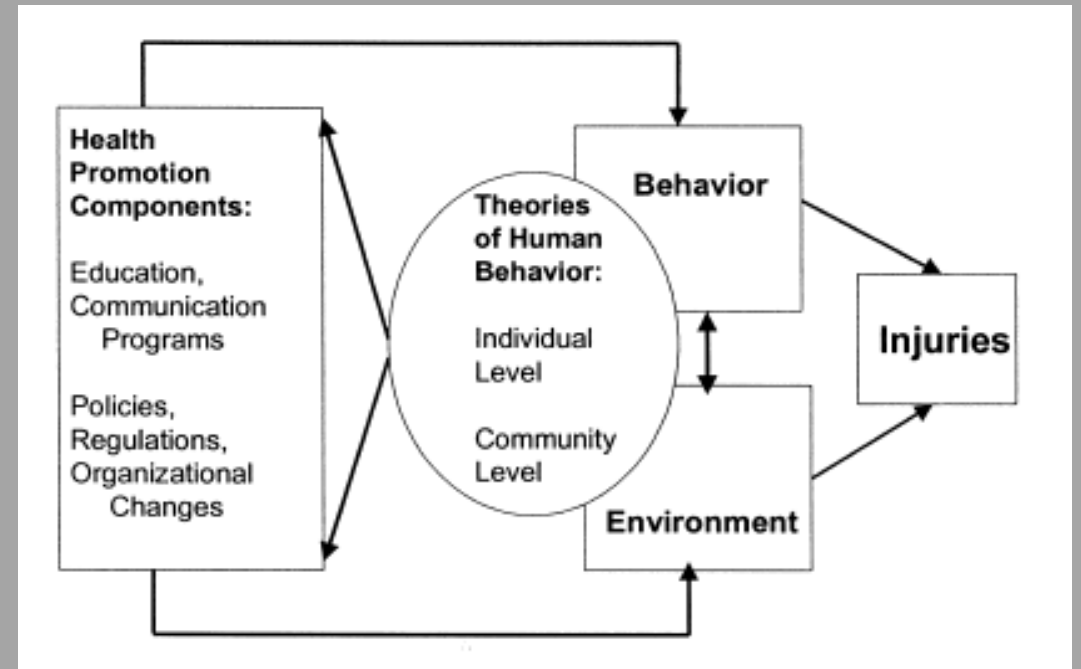
# Approaches to Farm Injury Prevention

- The '3 Es' Approach, Haddon's Matrix and the Hierarchy of Controls (HoC)
- Both physical and organisational controls required
- On-going implementation of OSH controls is disproportionately influenced by farmer/ farm managers managerial capacity (McNamara, 2015)
- Influencing farm management of OSH crucial



# Improving Farm Safety

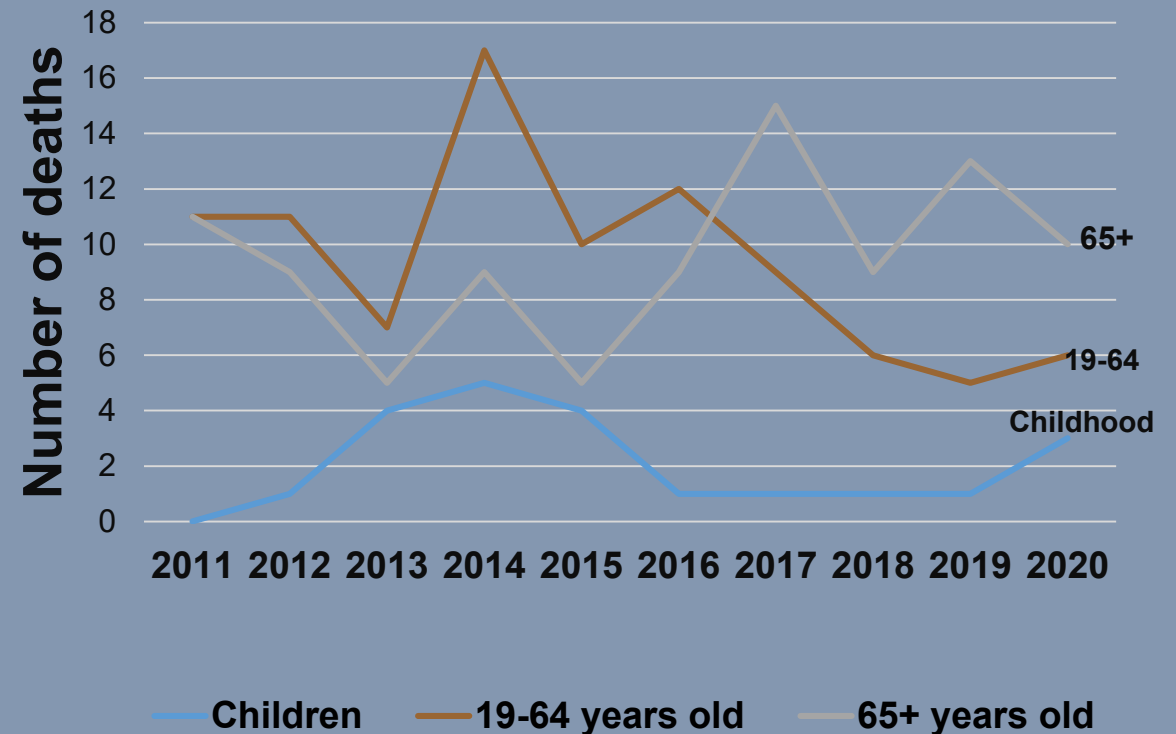
- Farm Injuries have multiple causes – both behavioural and physical (e.g. Gielen & Sleet, 2003)
- Farmers prioritise ‘work’ over safety (Stuthridge & Field 2012, McNamara & Phelan, 2008)
- Both behavioural and physical improvements required



Health Promotion Framework for Injury Prevention (Gielen and Sleet, 2003. )

# Irish Experience: OSH Improvements

- OSH Legislation in 1989: Initial Farm Injury reduction (60%) (McNamara & Reidy, 1996).
- Age effect, older increase (e.g. Myers, 1990)
- Wave effect— based on publicising fatal injury in media
- Developments in sector, e.g. dairy expansion
- Current Covid-19 – More labour on farms, less activities off farms, less injuries
- Code of Practice – increased adoption (McNamara, 2015).
- Discussion Groups – peer support: increased intention to Implement (O'Connor, 2020)





# Why do Injuries Happen?

- They don't know they're doing something dangerous
- They don't know how to do the task safely
- Completing the task in an unsafe manner provides benefits



**EDUCATION IS THE APPROPRIATE  
STRATEGY**



**SOCIAL MARKETING OR  
NUDGING IS THE APPROPRIATE  
STRATEGY**

## Consciously: **SOCIAL MARKETING**

*Alter choice environment to make safety the preferred option*

## Sub-consciously: **NUDGING**

*Alter choice environment to 'nudge' individuals in the right direction*


# Potential for Nudging in Farming

- Implementing a range of HoC controls reduces risk. (Dosman et al,2015)
- Assist farmers to make better farm OSH decisions – either consciously or sub-consciously
- Both behavioural and physical controls required on an on-going basis
- Controls should integrate into overall farm management well

**Nudging needs EVALUATION, aka Dairy Safety Nudging Project.**

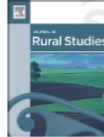
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Journal of Rural Studies

journal homepage: [www.elsevier.com/locate/jrurstud](http://www.elsevier.com/locate/jrurstud)



Comparing a ‘budge’ to a ‘nudge’: Farmer responses to voluntary and compulsory compliance in a water quality management regime



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**A B S T R A C T**

**Keywords:**  
Nudging  
Regulation  
Water quality management  
Comparative factor analysis

A set of choice related interventions exist for ‘nudging’ individuals towards socially desirable behaviours. Conversely, regulation, which we refer as ‘budging’, implies a reduction in the choice-set for these individuals. We compare the voluntary adoption of water quality management techniques between farmers within a designated Nitrate Vulnerable Zone (NVZ) with those outside the zone across Scotland. Divergent groups emerge towards the purpose of the regulation, responsibility towards water pollution issues and compliance towards the regulation. There were significantly higher levels of adoption of some voluntary water quality measures by members of the non-designated group.

We argue that engagement with these farmers should not focus purely on the biophysical division under which they are designated but should include the range of attitudinal alignments should include across designations in order to change social norms. This would be an approach for raising the social capital of farmers within a community and engender long-term behavioural change.

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**Nudge positive outcome with farm water quality ( Barnes et.al. 2013)**



# What is a Nudge?

“First, never underestimate the power of inertia. Second, that power can be harnessed.”

-Richard Thaler

## **Public Health and Nudging:**

- Obesity Prevention
- Healthy Diet
- Organ Donation
- Smoking Cessation



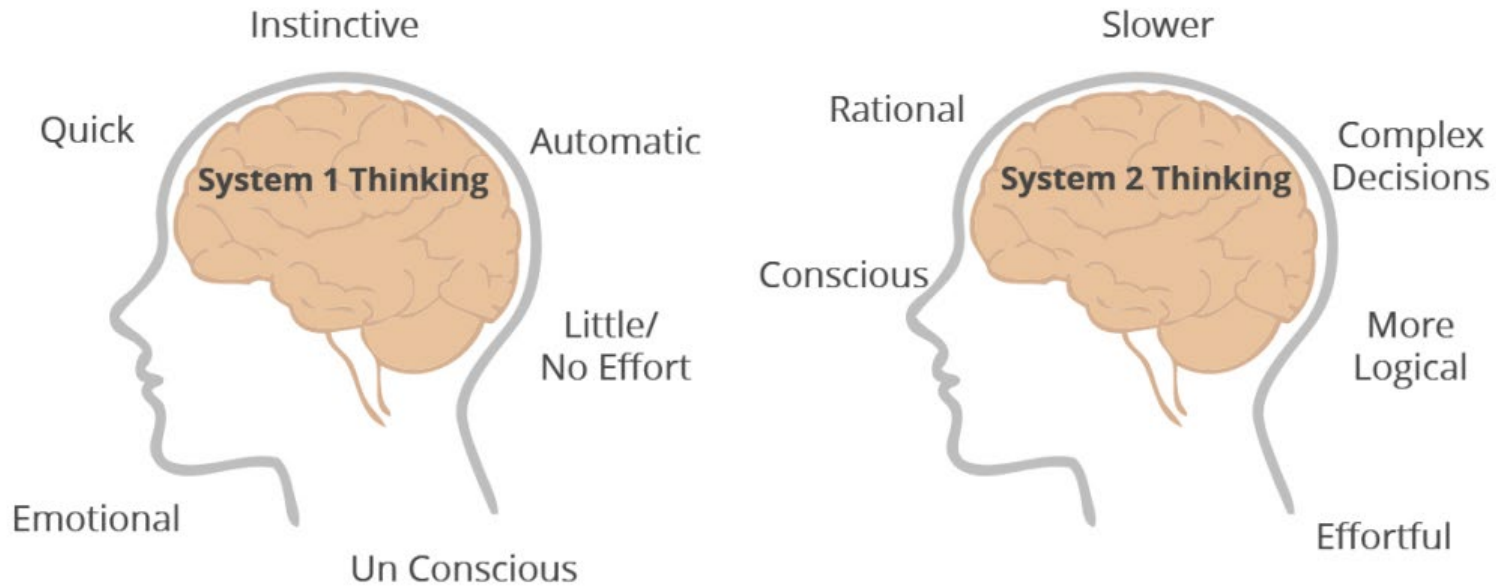
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# How do People Think?

## *DUAL PROCESS THEORY*

### DANIEL KAHNEMAN'S SYSTEMS OF THINKING



SOURCE:  
<https://www.digite.com/blog/yin-yang-productivity/>

# How do People Think?

Safety solutions assume people are thoughtful

Safety solutions assume people are rational

**Most decisions are neither**

People act automatically

People take shortcuts

People do what others do

People rely on habit

People rarely weigh pros and cons





# How do People Think?

## SYSTEM 1

Intuition & instinct



Unconscious  
Fast  
Associative  
Automatic pilot

## SYSTEM 2

Rational thinking



Takes effort  
Slow  
Logical  
Lazy  
Indecisive



*Source: Daniel Kahneman*

# How do People Think?

In fact....

- Financial stress
- Fatigue
- Time constraints
- Peer pressure
- Other environmental cues...

System 1



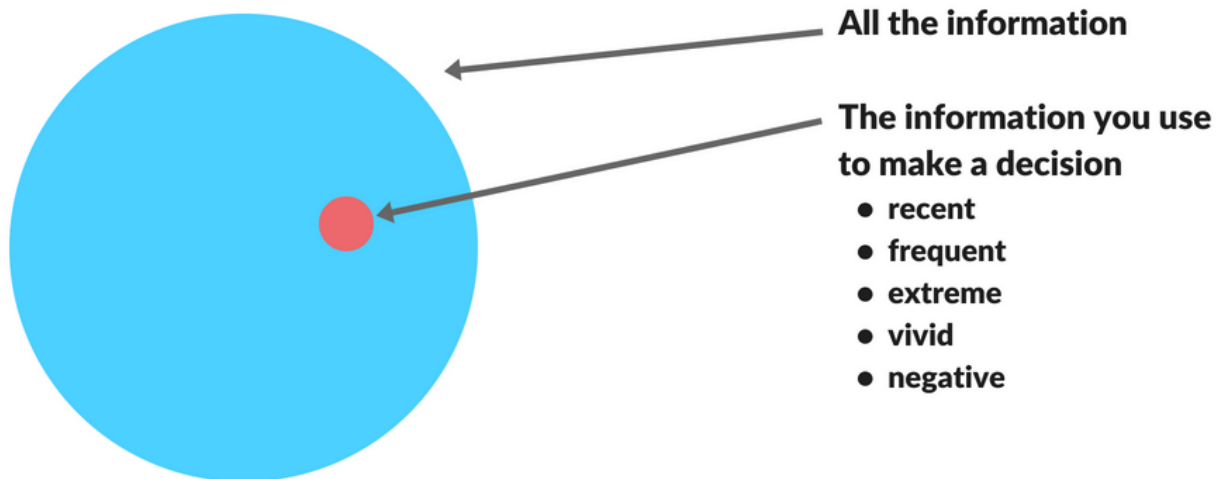
System 2





# Thinking Shortcuts: A Few Examples

## The availability heuristic



### 2. Availability heuristic.

People **overestimate the importance** of information that is available to them. A person might argue that smoking is not unhealthy because they know someone who lived to 100 and smoked three packs a day.



# Thinking Shortcuts: A Few Examples

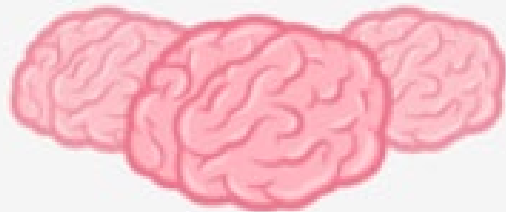
Saliency-objects  
that attract attention  
because they are  
different



# Thinking Shortcuts: A Few Examples

### 3. Bandwagon effect.

The probability of one person adopting a belief increases based on the number of people who hold that belief. This is a powerful form of **groupthink** and is reason why meetings are often unproductive.




Social  
Norming  
Campaigns



Nazareth Student

## The Average ~~Cat~~

Only Consumes 3 Alcoholic Drinks or Less at Parties



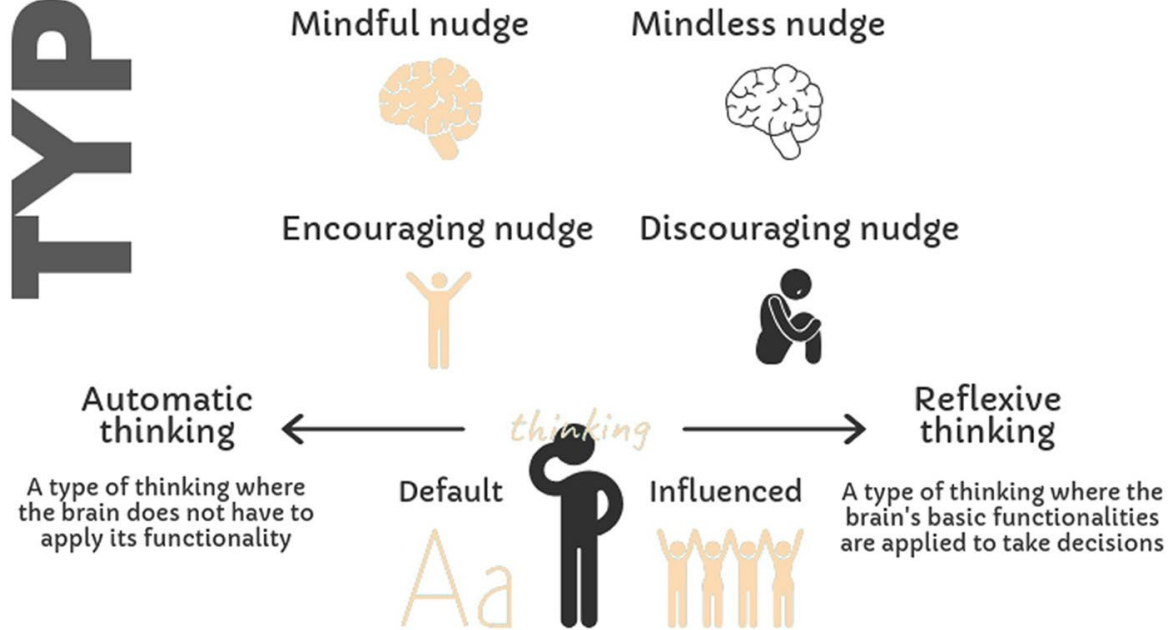
**The Truth May Surprise You.**

Nazareth College CORE Alcohol and Drug Survey  
Sponsored by Student Health Services and Substance Abuse Services - Fall 2010.

# Nudging Types

## TYPES

### WHAT ARE THE TYPES?





# NUDGING: Intervention Development

Ask yourself...

Is it a “behavioral  
problem”?



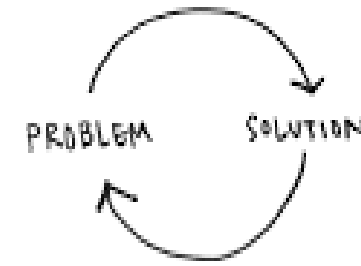
Looking for Anomative  
Behavior (behavior that  
appears counter-intuitive)





Thus a “behavioral problem” is not...

- a knowledge problem (lack of information)
- an attitude problem (resistant to change)
- a barrier problem (can't change)



**PARTICIPANT CHECK-IN:**

“What problems can you identify that would be considered ‘behavioral problems’ in the field of AgFF safety?”

## Nudge Development Process:

- 1) Identify behavioral outcome
- 2) Identify target audience
- 3) Understand the context
- 4) Map the behavioral problem
- 5) Select process trigger point
- 6) Align trigger point with BASIC strategy



SOURCE CONTENT: <https://www.informationweek.com/strategic-cio/data-driven-nudging-cool-or-uncool/a/d-id/1334838>



# 1) Identify behavioral outcome...

Ask yourself...

Is it a knowledge problem?

Is it an attitude problem?

Is it a barrier problem?







## 2) Identify target audience

### **PARTICIPANT OBSERVATION:**

- Non-Participatory
- Passive Participation
- Moderate Participation
- Active Participation
- Complete Participation

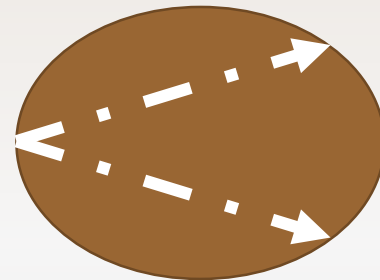


### 3) Understand the Context

Get specific!

**Who: Farmworkers**

**When: Shift  
Changes**



***Establish Baseline!!***

**Preferred Behavior:  
Communication  
55%**

**Non-preferred Behavior:  
Information Not Shared  
45%**



## 4) Map the Behavioral Problem

Break it down! (Behavioral Reduction)

### Setting

- Day shift workers see night shift workers around 5:00
- Limited opportunity for in-person communication
- Farm manager and owner less present in evening

### Behavior

- Workers tired at the end of the shift
- Not always easy to share bad news
- Not a system for easily sharing info

### Post-event

- No repercussions for bad behavior
- No rewards for good behavior
- No consistent reinforcement to alter status quo

## 5) Select Process Trigger Point



Decision  
making  
Impacted



Priority is  
Socializing



Focus on:  
1) Convenience  
2) Approval

## 5) Selecting Behavior Target

*Apply priority filter...*

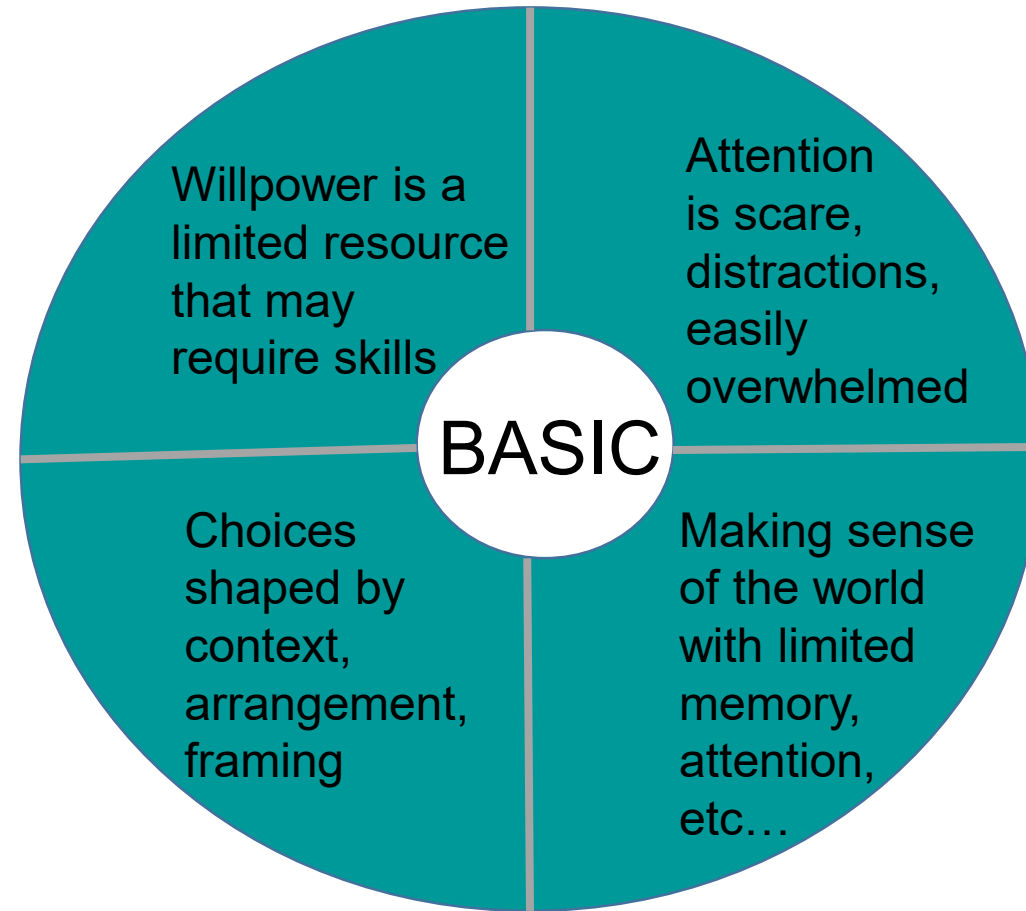
	Option #1	Option #2	Option #3
Access to the arena			
Access to data			
Is it controversial			
Is it ethical			



# The ABCD Framework

## 6) Align Behavior with BASIC Strategy

**BAS**  
Process  
for App



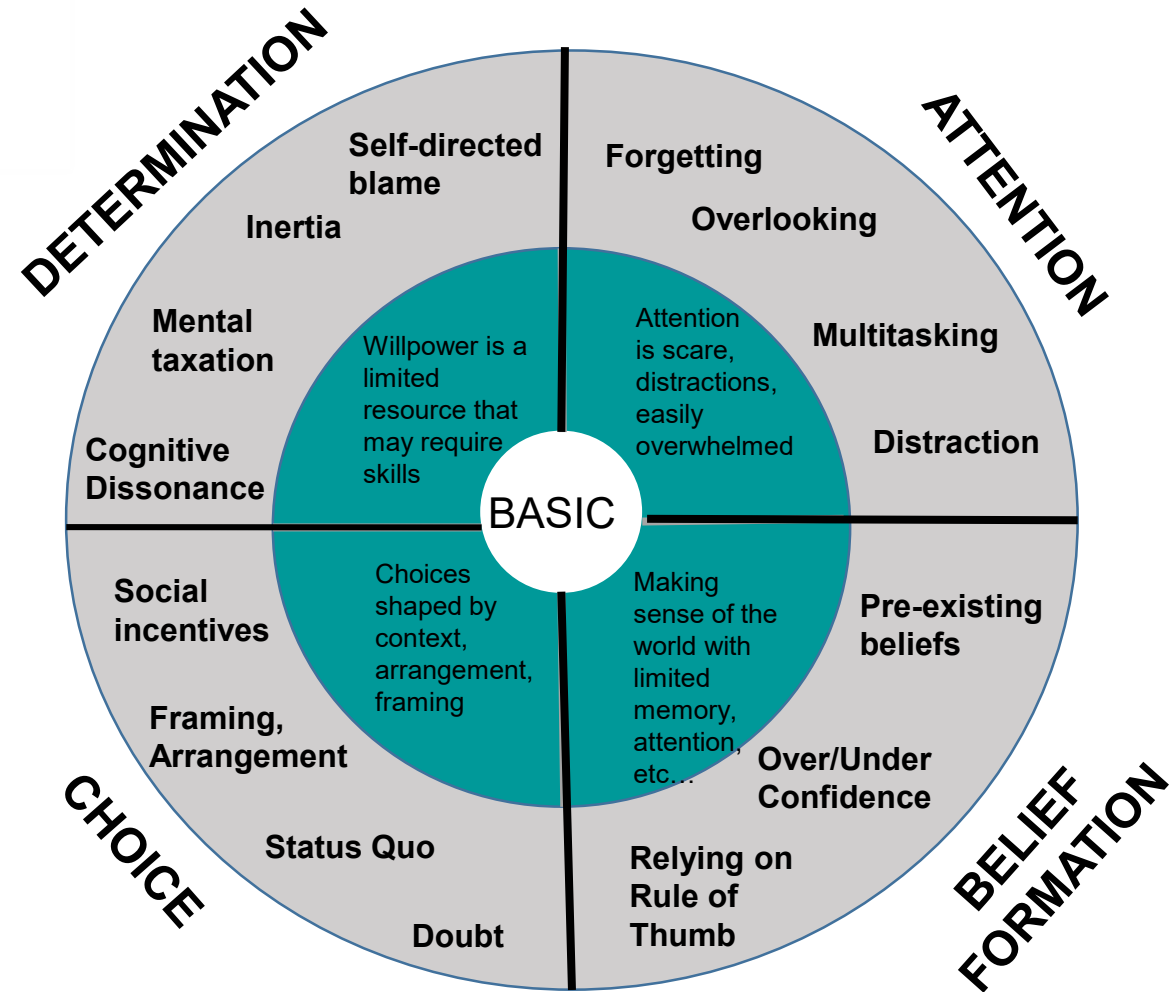
Behavioural Insights  
strategies

problems

Behavioural Insights

# Diagnostic Aspect

SOURCE CONTENT:  
[https://www.oecd-ilibrary.org/sites/9ea76a8f-en/1/2/2/index.html?itemId=/content/publication/9ea76a8f-en&\\_csp\\_=8eae351f7e3b3dc1ef7c6c5776219f&itemID=oeecd&itemContentType=book](https://www.oecd-ilibrary.org/sites/9ea76a8f-en/1/2/2/index.html?itemId=/content/publication/9ea76a8f-en&_csp_=8eae351f7e3b3dc1ef7c6c5776219f&itemID=oeecd&itemContentType=book)

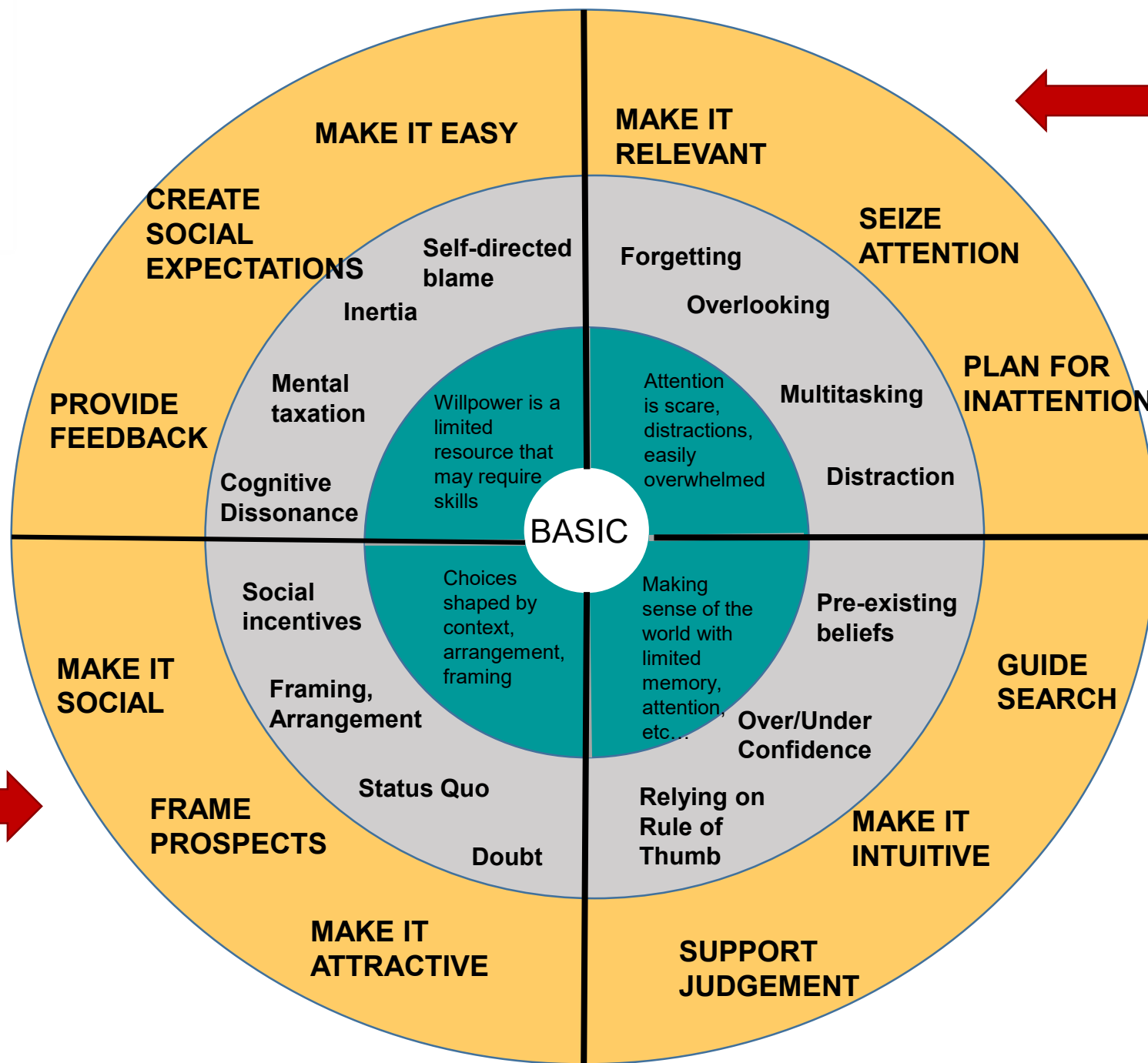


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# Diagnostic Indicators



# Insight Strategies





# Cross-Shift Communication Board







**MARCADOR**

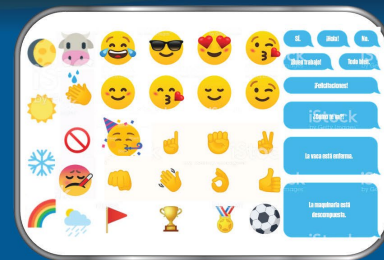
**EQUIPO DE DÍA** / DAY TEAM / Informes / Reports

**EQUIPO DE NOCHE** / NIGHT TEAM / Informes / Reports

PENALES / PENALTIES

¡Celebraciones! / Celebrations!

	Nada que informar Nothing to report	Algo que informar Something to report	?	Pregunta / Question	!	Repuesta / Answer	✓	Entendido / Understood
 Vacas / Cows								
 Maquinaria / Machinery								
 Materiales / Materials								
 Otro / Other								



# Evaluation

- Participant observation
  - Go back to baseline, % of preferred/non-preferred behavior
- Target Outcomes
  - Increased communication
  - Decreased injuries
- Non-safety outcomes
  - Less product loss?
  - Less waste?



## More Examples-Nudging in Danish Ag.

### Farm Concerns:

- Elevated somatic cell counts
- Increased hygiene
- Correct procedures in milking parlor

### SEGES Concerns:

- Meeting farmers concerns using nudges
- Incorporating safety in nudges





# SEGES-Nudging in Danish Agriculture

## Challenges:

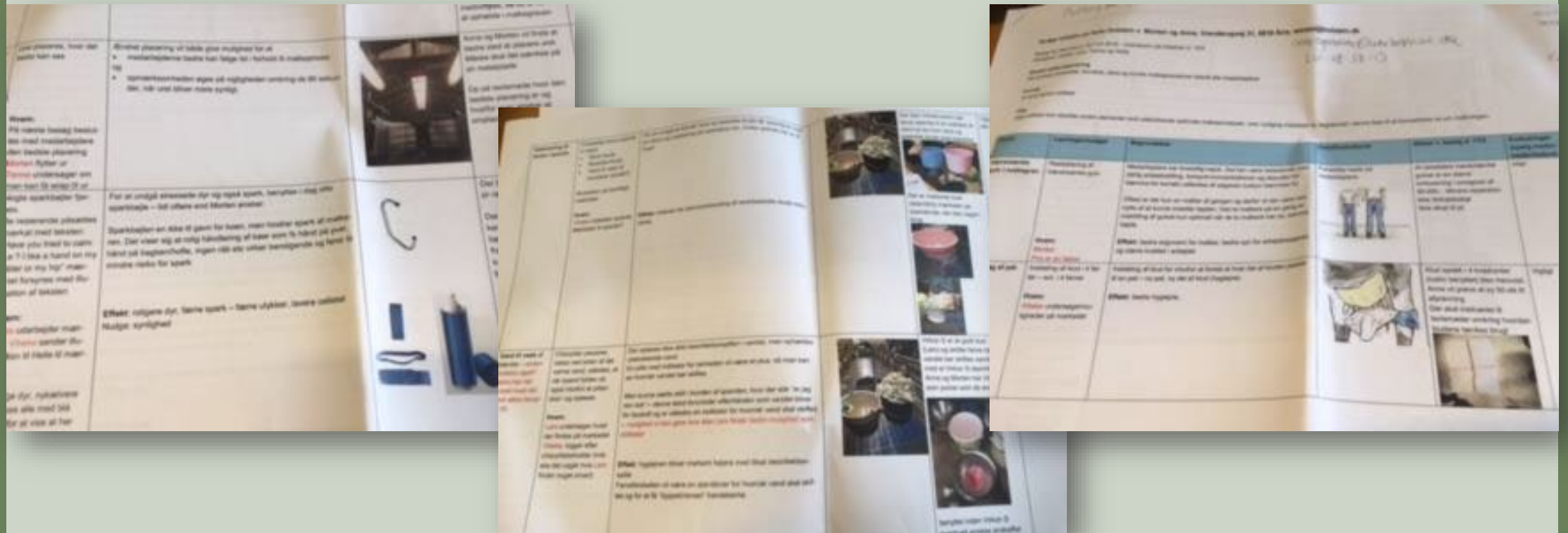
- Language barriers
- Cultural barriers
- Working alone
- Long work shifts
- Time stressed
- Risk of animal injury
- Likely more...



**OBSERVATIONS AND INTERVIEWS**

# Identifying Nudging Opportunities

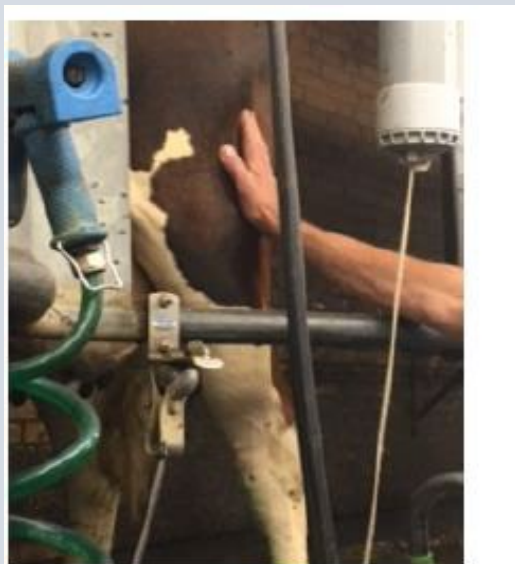
## Catalogue of Ideas Presented to Farmer





# Salience-Focusing Attention

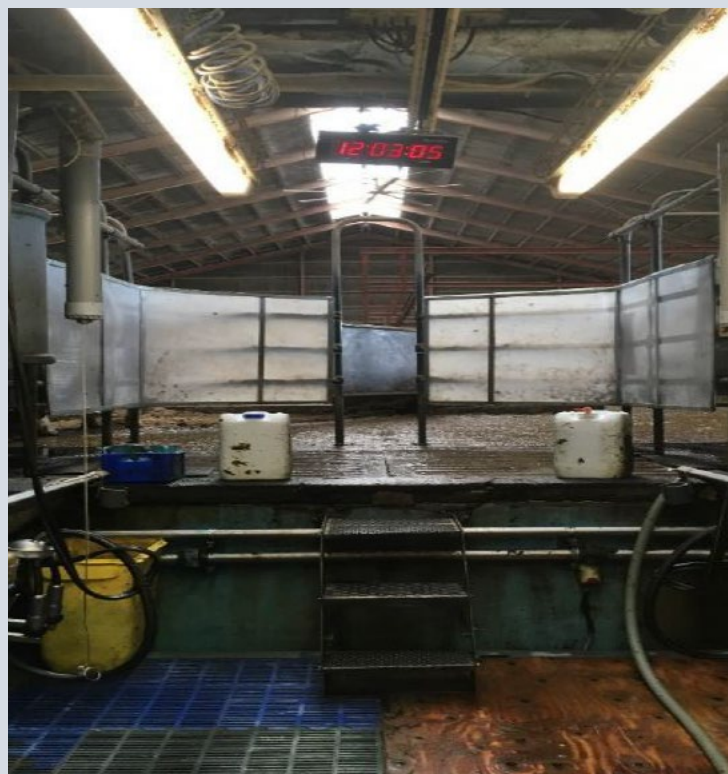
## Calming Cows



Have you tried to calm  
me by placing your  
hand on my hip?

**Reminder: STICKER**

## Following Protocol



**Visual: CLOCK PROCEDURES**

## Hygiene

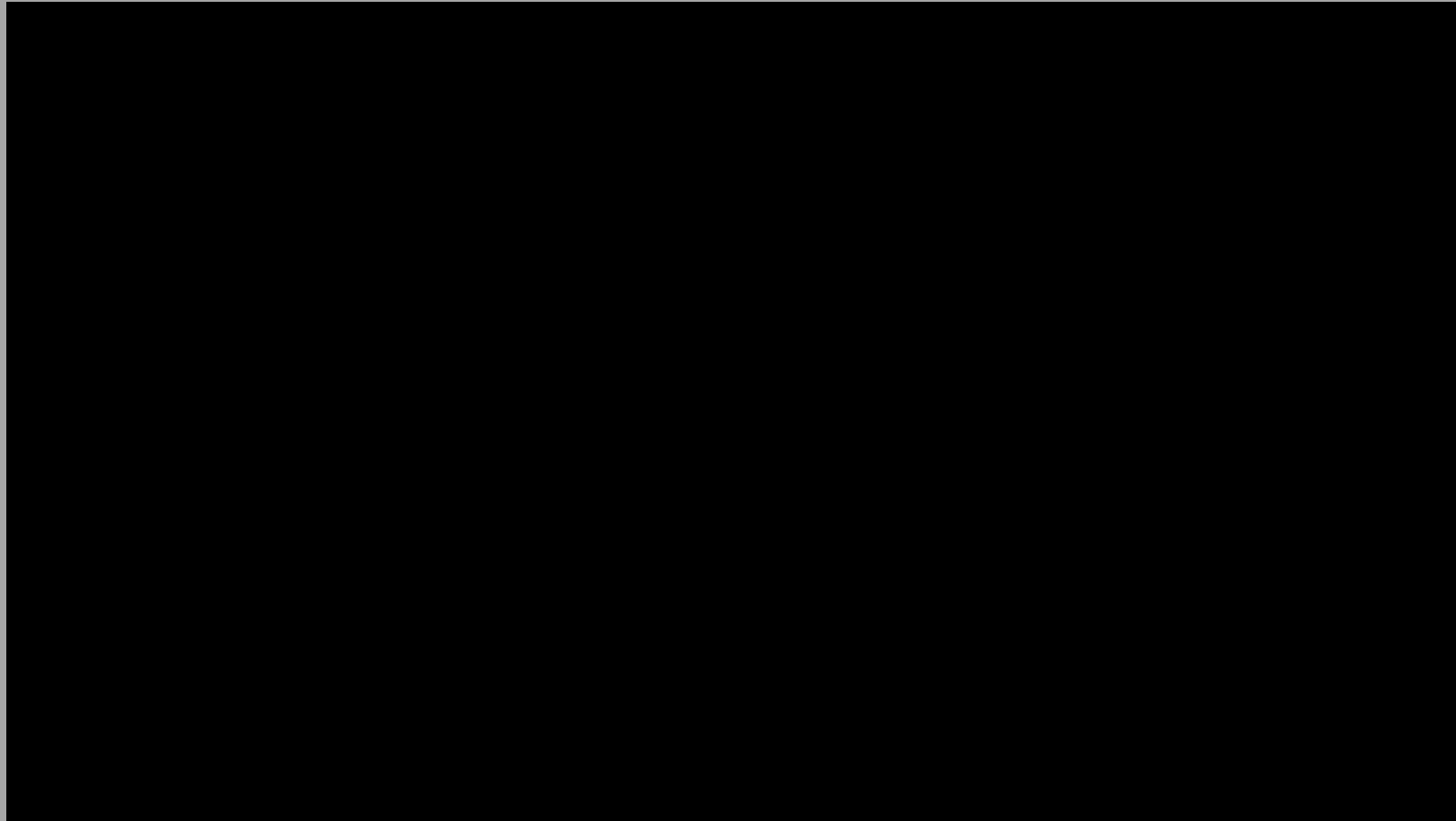


**Visual: USE ALL RAG**



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New York Center for Agricultural  
Medicine and Health

# SEGES Nudging Project





**Dairy Safety Nudging Project**  
 New York Center for Agricultural  
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# Co-creating Nudges?

factory < 200,000 (less than 200,000)	Sun: 277,000 Mon: 314,000 Tues: 285,000 Wed: 304,000 Thurs: 287,000	Ke, St, Va, St, Re, J Ke, St, Re, Ke, Di, To Re, Ke, Re, Ke, Di, To Re, St, Ke, Ke, Di, To Ke, St, Re, Di, Ke, E
Cell-count Agerbak (less than 100,000)	Monday: 103,000 Tuesday: 116,000 Wednesday: 131,000 Thursday: 106,000	Re. vad. AX, Cr. Re. vad. AX, Cr. Re. AX, Vad. Re. Re. AX.
Dip/iod:	Go 2 + 6: 6 bottles Go 4 + 5: 6 bottles	RESULTS
Mastitis	FB: Normal: 1 Bad: 0 AG: Normal: 1 Bad: 0	FB Normal Bad AG
Filter	FB: Clean: 3 AG: Clean	
Milking times	All	

Please write your ideas  
and post them on the board

thank you

I think.....

Why dont we....





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New York Center for Agricultural  
Medicine and Health

# Thank You!

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